



PORTABLE TEMPORARY RUMBLE STRIPS

Reducing Distracted Driving Crashes in Work Zones



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Feb. 28, 2019

Today's Presentation

- **Distracted driving crashes in Virginia**
- **VDOT's policy on the use of PTRS**
 - **Shall conditions for use**
 - **Should conditions for use**
 - **May conditions for use**
- **PTRS Specifications**
- **PTRS Installation video**

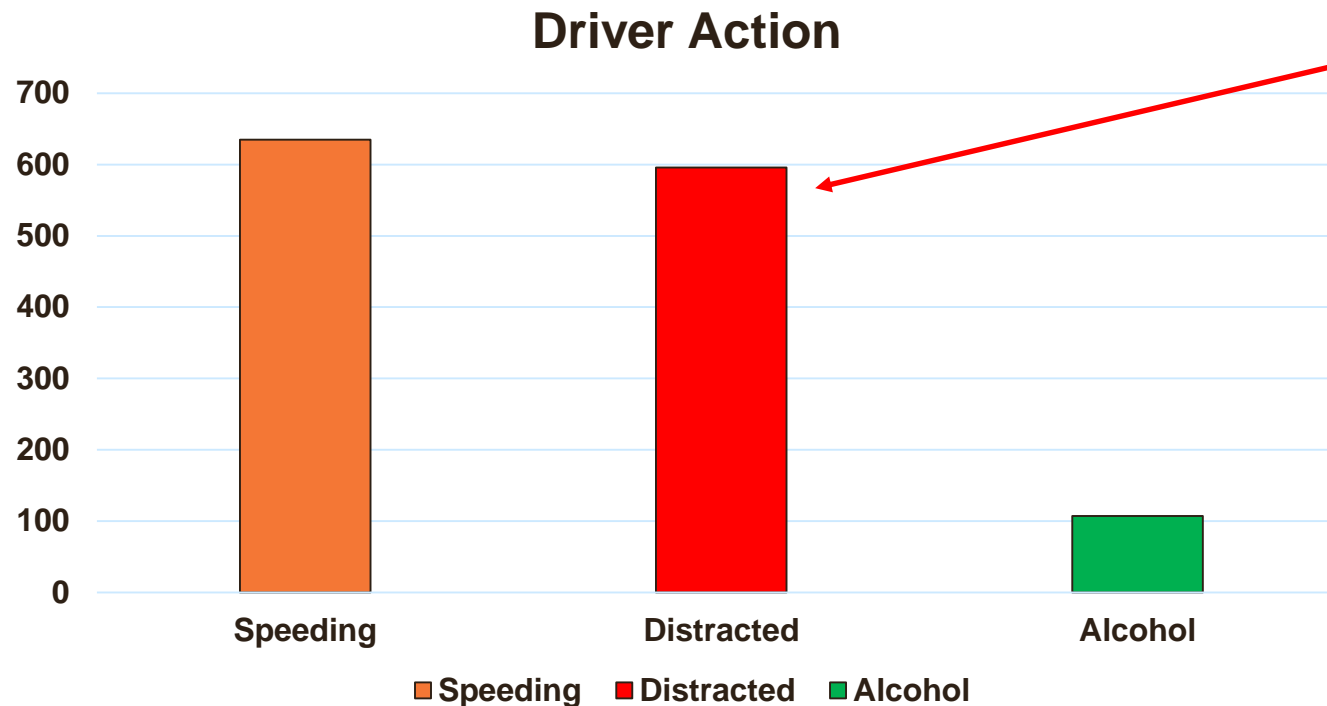


Distracted Driving Crashes in Virginia



2017 Work Zone Crashes – Driver Actions

- 635 crashes were speeding driver related
- 596 crashes were distracted driver related *
- 107 crashes were alcohol related



* Distracted driving crashes are believed to be the most under reported crashes occurring on our roadways today.

Distracted Drivers – Our #1 Challenge



Distracted Drivers – Our #1 Challenge



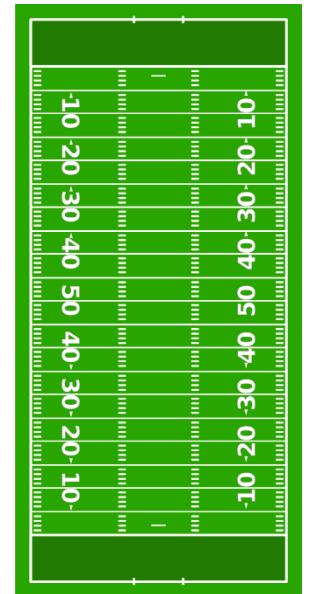


National Distracted Driving Facts

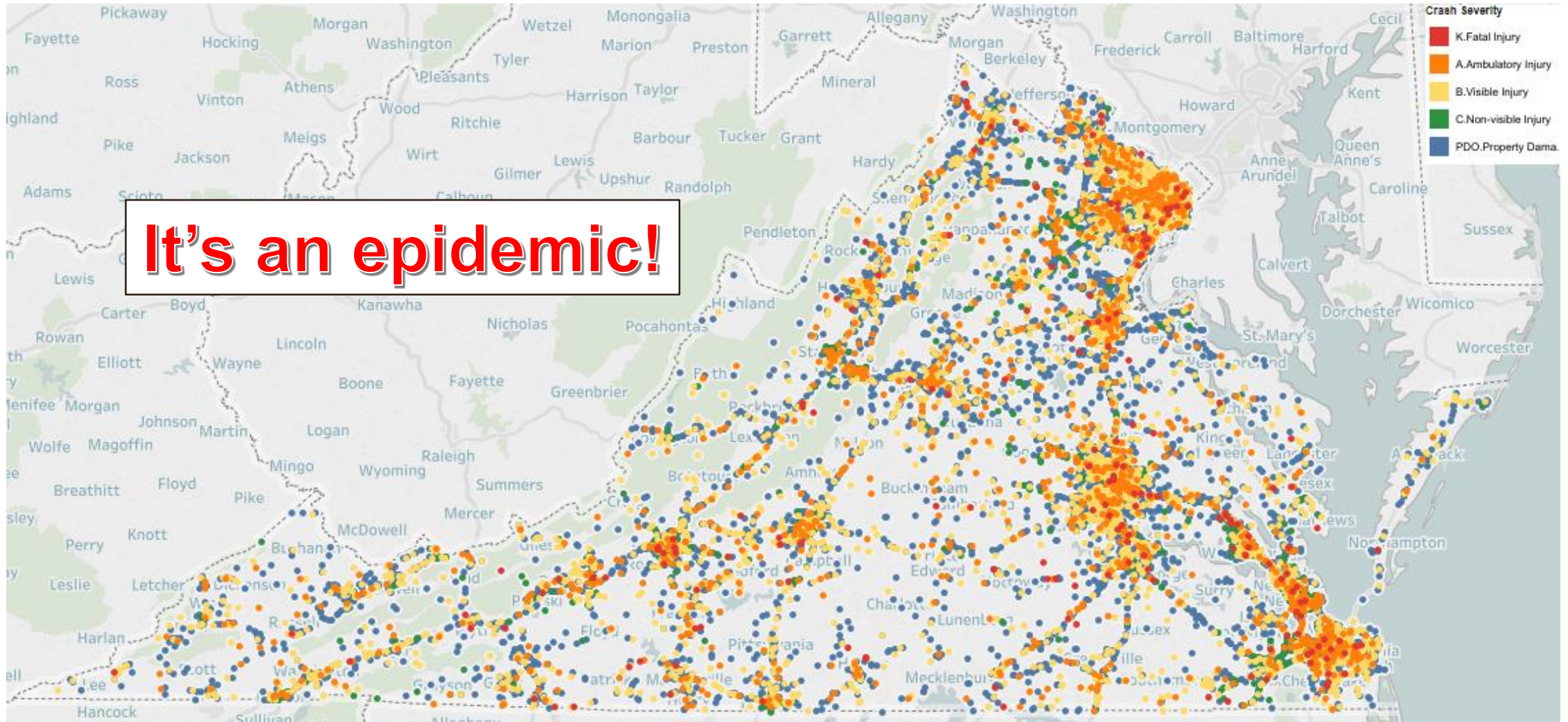
- **85% of drivers** – are distracted by their cell phones while driving.
- **1 out of 6 minutes** – drivers are on their phones one out of every six minutes while driving.
- **71% are texting** – 71% of drivers are texting while driving.
- **Talking on a phone** – you're 2.2 times more likely to crash while talking on the phone.
- **Texting while driving** – you're 6.1 times more likely to crash from texting.
- **Dialing a phone** – you are 12.2 times more likely to crash from dialing a phone.

National Distracted Driving Facts

- At any given daylight moment across America, nearly 750,000 drivers are using their cell phones or some other electronic devices while driving, a number that has steadily increased since 2010 (NOPUS).
- Five seconds is the average time your eyes are off the road while texting. When traveling at 55 mph, that's enough time to cover the length of a football field - blindfolded (2009 VTTI).

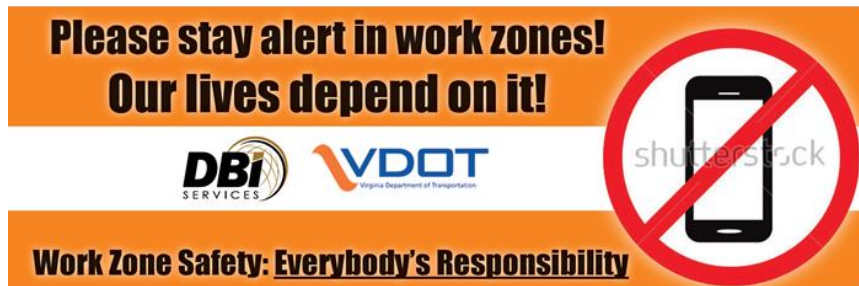


Distracted Driving Crash Locations in 2017



Driver Awareness Campaigns

- Billboards on the interstate
- Radio PSA's
- Safety messages on Interstate CMS
- Partnered w/ VTCA, Drive Smart VA, VSP and others



2018 Distracted Driving Crashes in VA

Several serious crashes occurred in 2018 highlighting the problem of distracted driving:

- One resulted in the fatality of a VDOT contract worker;
- One involved a crash into three VDOT crew members with one being seriously injured;
- Another was a crash into a contractor again causing serious injury;
- Several weeks later flaggers in two VDOT districts were struck two days apart.



Portable Temporary Rumble Strips (PTRS)

In Nov. '17 issued IIM-TE-386 on the use of PTRS and revised it on 10/15/18.



VIRGINIA DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
INSTRUCTIONAL & INFORMATIONAL MEMORANDUM

GENERAL SUBJECT: Portable Temporary Rumble Strips (PTRS)	NUMBER: IIM-TE-386.1
	SUPERSEDES: Nov 6, 2017
SPECIFIC SUBJECT: Revised Guidelines for the use of Portable Temporary Rumble Strips (PTRS)	DATE: Oct. 15, 2018
	SUNSET DATE:
APPROVAL: /original signed by/ Raymond J. Khoury, P.E. State Traffic Engineer Richmond, VA October 15, 2018	

Changes are shaded

CURRENT REVISION

This memorandum was revised changing the use of Portable Temporary Rumble Strips (PTRS) from a "should" to a "shall" condition for flagging operations on two-lane roadways, greater than three hours but less than three consecutive days in duration.

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PTRS Benefits



- It creates an audible noise and vibration to approaching motorists;
- Raises motorists attentiveness to flagging operations;
- Provides an audible warning to flaggers, increasing their awareness of approaching vehicles and;
- Helps reduce rear end collisions and roadway departures.

PTRS Questions

We've been looking at these devices since 2011, and trying them on VA roads for the past five years.

Questions we had that we needed answering were:

- How do they perform when heavy trucks run over them?
- What effect do they have on motorcyclists?
- How do drivers react when they see them for the first or second time?
- How much noise do they make when run over?
- How difficult are they to install/remove?
- How do they perform when wet or on wet roads?



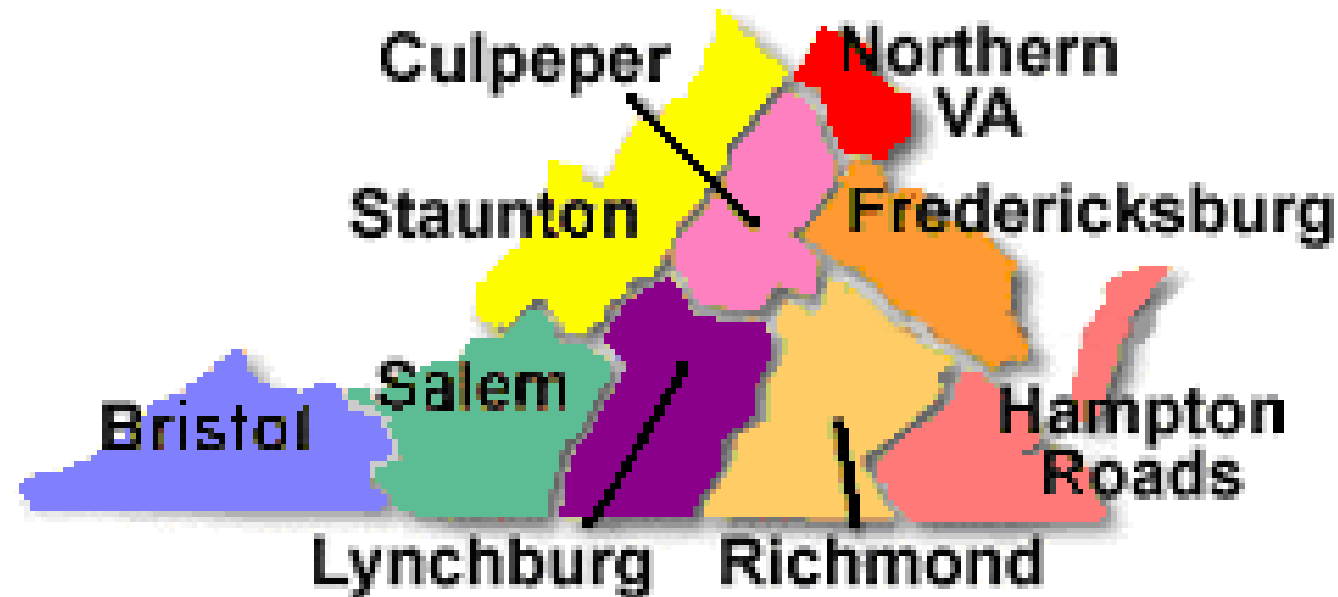
PTRS Experience by Others

Other state DOT's have been using them or allowing their use for a few years, including:



VDOT Trials with PTRS

We purchased nine pairs of PTRS and tried them in each of our nine districts, getting feedback from our employees and an evaluation from the Virginia Transportation Research Council.



Conditions for the Use of PTRS

Shall be used when the following conditions are met concurrently:

- Work operation involving flaggers occurs on a two-lane roadway during daylight hours;
- Work duration is > three hours but < 72 hours;
- Existing posted speed limit is 35 mph or >; and,
- Roadway has a marked centerline (500 vpd)

PTRS shall be used in both stationary and non-stationary flagging operations.



Conditions for the Use of PTRS

PTRS **shall not** be used on loose gravel, bleeding asphalt, heavily rutted pavements or unpaved surfaces, in pedestrian crossings or marked bicycle lanes.



Conditions for the Use of PTRS

PTRS *should* be:

- Considered for use on unmarked roadways at least 18 feet wide or wider;
- Located in advanced of horizontal curves when possible so they are visible to traffic;
- Installed according to Section 6G.25 of the VWAPM (installed/removed as a mobile operation or as a slow roll operation)



Conditions for the Use of PTRS

PTRS may be:

- Used at posted speeds < 35 mph;
- Used on one-lane, two-lane application which utilizes AFADs or portable traffic signals;
- Used on a divided four-lane (non-limited access) roadway at the discretion of VDOT management;
- Used during nighttime operations.



PTRS Specifications



- PTRS shall be hinged segments of equal length.
- Length 10'-9" to 11' long, max. 1" in height, 12" to 13" in width.
- Weigh between 100 to 120 lbs. max. per strip.
- Rubber or recycle rubber black or orange in color.
- PTRS shall be able to withstand being run over by an 80,000 lb. vehicle and not move more than 6 inches in an eight hour period.
- PTRS shall be used in arrays of three rumble strips.
- Payment shall be per day for each array.

PTRS Spacing Requirements

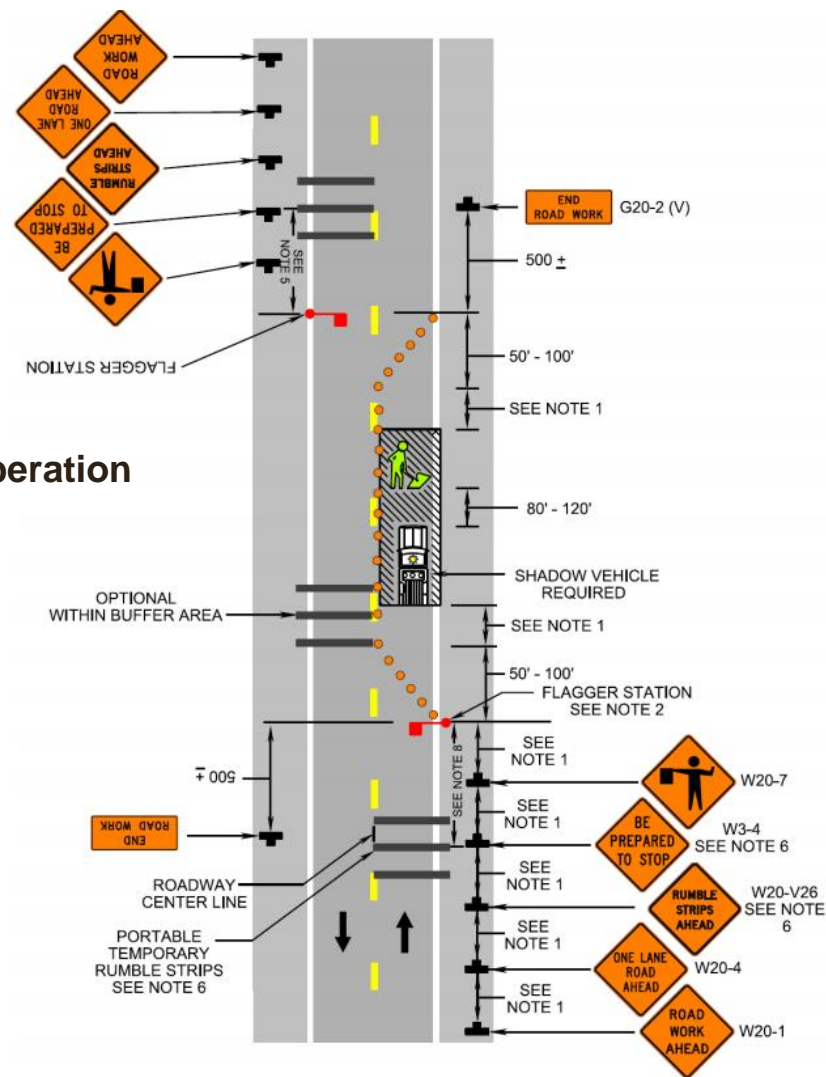


Spacing of the PTRS is related to the posted or statutory speed limit of the roadway during work operations. Each strip should be spaced center to center at the following distances:

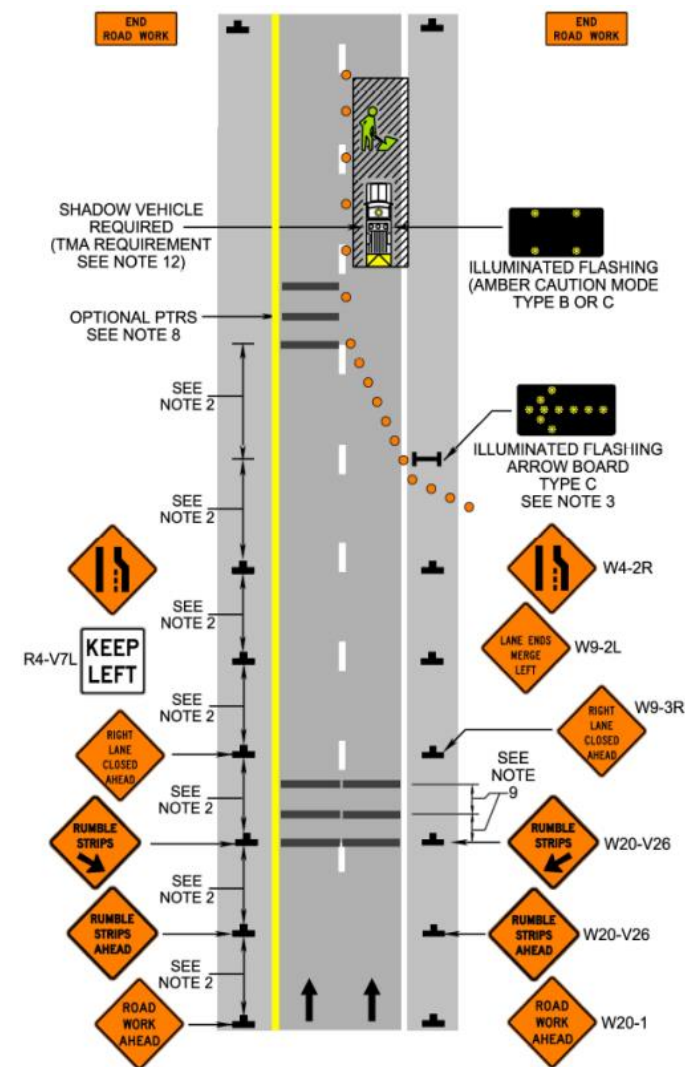
Spacing of Portable Temporary Rumble Strips	
Posted/Statutory Speed Limit	Spacing in Feet (center to center)
≤ 40 MPH	10 Feet
41-55 MPH	15 Feet
> 50 MPH	20 Feet

PTRS Application

Two-Lane Flagging Operation



Four-Lane Roadway Lane Closure



PTRS Implementation Dates

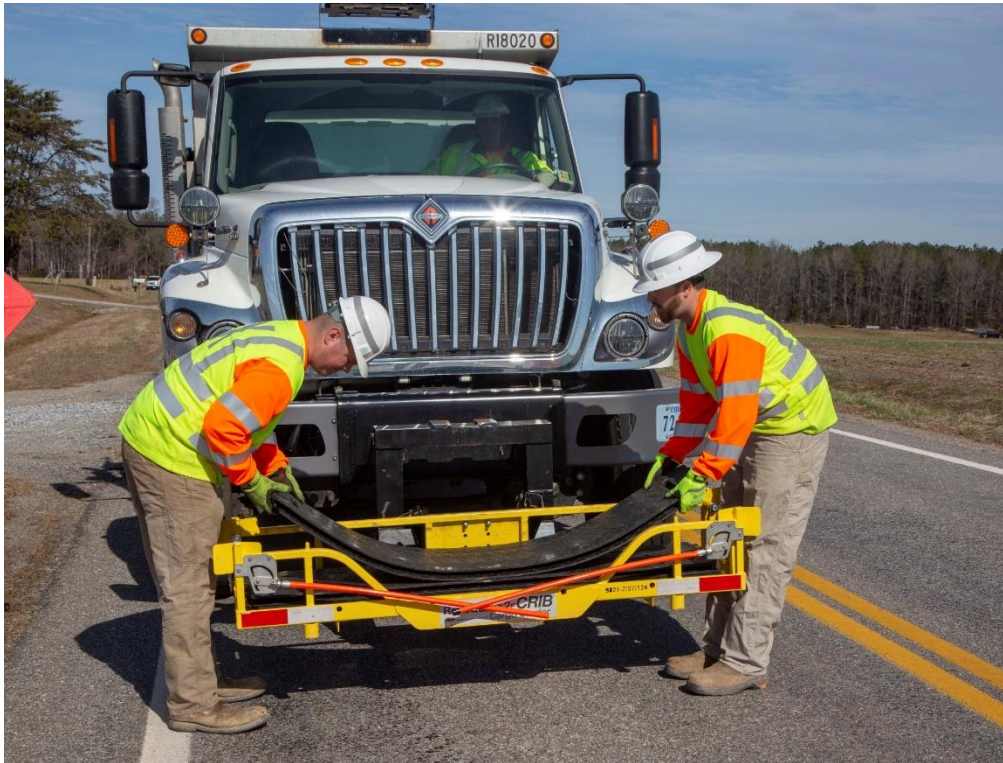


Implantation dates for PTRS:

- State forces – required by Jan. 1, 2019
- Design-Bid-Build contracts & Design-Build PPTA – incorporate into projects advertised after July 1, 2019.
- ASD Contracts – existing contracts should be modified as soon as possible but no later than July 1, 2019
- Not required by municipalities (but they may use them).
- Not required in emergency situations

PTRS Installation Video

The following video has been made showing the basics on the use of PTRS and will be available soon.



Implementing PTRS



- **Distracted Driving crashes are on the rise**
- **PTRS help in getting drivers attention and provides warning to flaggers**
- **Using proper lifting techniques, PTRS can be deployed safely and quickly**
- **Public Awareness campaigns can assist in gaining motorists acceptance**
- **Devices should be monitored through the day for movement**

Implementing PTRS

Questions?

Thanks!

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